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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/255,605	02/22/99	YAMAZAKI ' S	SEL-125

WM02/0919
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EXAMINER	
KOVALICK,V	
ART UNIT	PAPER NUMBER
2673	9

DATE MAILED: 09/19/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/255,605	YAMAZAKI ET AL.	
	Examiner	Art Unit	
	Vincent E Kovalick	2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 July 2001* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *9* .
18) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to Applicant's Amendment dated July 2, 2001 in response to PTO Office Action dated February 1, 2001. The amendments to claims 1, 3, 7, 9, 13, and 15; the additions of claims 19-21 and applicant's remarks have been noted and entered in the record.

Arguments are not Persuasive

2. Applicant's arguments filed July 2, 2001 have been fully considered but they are not persuasive. Regarding applicant's argument "the information processing device of the claimed invention has the camera or image pick-up device provided over the input operation device"; the Beller et al. prior art (U.S. Patent No. 6,046,712) teaches a camera (image pickup device) as part of the head mounted information system. It would be obvious to a person of ordinary skill in the art that the field of view of said camera would be adapted to take in the input operation device.

Claim Rejections - 35 USC § 103

3 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schoolman (U.S. Patent No. 5,281,957 taken with Dwyer, III (U.S. Patent No. 5,281,960) in view of Beller et al. (U. S. Patent No. 6,046,712).

Relative to claims 1, Schoolman **teaches** a portable computer and head mounted display (col. 2, lines 63-68; col. 3, lines 1-33 and Figs. 1 and 7). Schoolman further **teaches** an information processing device comprising: a display device having flat panel displays for right and left eyes mounted on the head of a user (col. 3, lines 1-4 and Fig. 7). Schoolman further **teaches** an input operation device connected to said controller, wherein said flat panel displays are capable of displaying a plurality of pieces of information at a time (col. 6, lines 54-59). Schoolman **teaches** the flat panel displays being liquid crystal displays (col. 3, lines 1-4); it being understood that it is well known and in common practice in the art to display a plurality of pieces of information at a time on LCD's.

Schoolman **does not specifically teach** (though he does suggest, col. 5, lines 6-13) a controller connected to said display device.

Dwyer, III **teaches** a helmet mounted display (col. 4, lines 53-68; col. 5, lines 1-68 and col. 6, lines 1-68). Dwyer, III further **teaches** a controller connected to a display device (col. 1, lines 55-62 and Fig. 1).

Schoolman taken with Dwyer, III **does not teach** a camera provided over the input operation device.

Beller et al. **teaches** a head mounted communication system for providing interactive visual and/or audio communications between a user of the head mounted system and an operator (col. 1, lines 48-67; col. 2, lines 1-67; col. 3, lines 1-14 and Fig. 1. Beller et al. further **teaches** a camera provided over the input operation device.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate in the device as taught by Schoolman the feature as taught by Dwyer, III and Beller et al. in that (as suggested by Schoolman) a controller is a necessary means in order to control and input the video images to the display devices. It would have been further obvious to a person of ordinary skill in the art at the time of the invention, that the camera as taught by Beller et al. could be oriented such that the field of view would take in a user input device.

5. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schoolman taken with Dwyer, III in view of Beller et al. as applied to claim 1 in item 4 hereinabove, and further in view of Funai et al. (U.S. Patent No. 6,162,667).

Regarding claim 2, Schoolman taken with Dwyer, III in view of Beller et al. **does not teach** channel formation regions of TFTs connected to pixel electrodes of the said flat panel displays of said display device are constituted by a semiconductor thin film formed by a collection of a plurality of bar-shaped or planar bar-shaped crystals formed on an insulting surface.

Funai et al. **teaches** channel formation regions of TFTs connected to pixel electrodes of the said flat panel displays of said display device are constituted by a semiconductor thin film formed by a

collection of a plurality of bar-shaped or planar bar-shaped crystals formed on an insulting surface (col. 1, lines 8-14).

It would have been obvious for a person of ordinary skill in the art at the time of the invention to incorporate in the device as taught by Schoolman taken with Dwyer, III in view of Beller et al. the feature as taught by Funai et al. in that it facilitates the fabrication of an active matrix type liquid crystal display device.

Regarding claim 4, Funai et al. further **teaches** an information processing device wherein 90 % or more of crystal lattices at grain boundaries of a channel formation regions have continuity (col. 12, lines 60-65). Though Funai et al. does not specifically cite 90 % he does teach "uniformity over a large area".

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schoolman taken with Dwyer, III in view of Beller et al. taken with Funai et al. as applied to claim 2 in item 5 hereinabove and further in view of Oka et al. (U. S. Patent No. 6,235,563)..

Relative to claim 3, Schoolman taken with Dwyer, III in view of Beller et al. taken with Funai et al. **does not teach** an information processing device wherein the channel formation regions of TFT's comprise a crystal grain having a <110> plane orientation.

Oka et al. **teaches** an information processing device wherein the channel formation regions of TFT's comprise a crystal grain having a <110> plane orientation (col. 4, lines 64-67; col. 5, line 1 and col. 11 lines 34-40).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to

use TFT's comprising a crystal gain having a <110> plane orientation to optimize field effect mobility.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schoolman taken with Dwyer, III in view of Beller et al. as applied to claims 1 in items 4 herein above, and further in view of Intriligator (U.S. Patent No. 6,163,323) taken with Lewis (U.S. Patent No. 6,040,812). Relative to claim 5, Schoolman taken with Dwyer, III in view of Beller et al. **does not teach** flat panel displays comprising a display device on which one screen is written at frequencies in the range from 30 Hz to 180 Hz and on which screen display is carried out with the polarity of the voltage applied to the pixel electrodes inverted for each screen.

Intriligator **teaches** a self-synchronizing animation (col. 1, lines 6-9 and col. 2, lines 27-40).

Intriligator further **teaches** a display device on which one screen is written at frequencies in the range from 30 Hz to 180 Hz (col. 3, lines 24-37).

Schoolman taken with Dwyer, III in view of Beller et al. taken with Intriligator **does not teach** flat panel displays comprising a display device on which screen display is carried out with the polarity of the voltage applied to the pixel electrodes inverted for each screen.

Lewis **teaches** an active matrix display with integrated drive circuitry (col. 1, lines 6-8 and 54-65; col. 2, lines 1- 16). Lewis further **teaches** display device on which screen display is carried out with the polarity of the voltage applied to the pixel electrodes inverted for each screen (col. 13, lines 23-34).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate in the device as taught by Schoolmen taken with Dwyer, III in view of Beller et al. the features as taught by Intriligator and Lewis in that Intriligator teaches a display refresh rate that is well know in the art and in common practice; and Lewis teaches the voltage inversion technique commonly employed in as noise control feature in matrix display devices.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schoolman taken with Dwyer, III in view of Beller et al. as applied to claims 1 in items 4 herein above, and further in view of Nishi et al. (U.S. Patent No. 5,541,747).

Regarding claims 6, Schoolman taken with Dwyer, III in view of Beller et al. **does not teach** a flat panel display device which is a liquid crystal display using a liquid crystal material which is antiferroelectric liquid crystal of ferroelectric liquid crystals substantially having no threshold. Nishi et al. **teaches** an electro-optical device utilizing a liquid crystal having a spontaneous polarization (col. 1, lines 7-26; col. 6, lines 11-67; col. 7, lines 1-36 and Abstract). Nishi et al. further teaches a flat panel display device which is a liquid crystal display using a liquid crystal material which is antiferroelectric liquid crystals or ferroelectric liquid crystals substantially having no threshold (col. 11, lines 5-16 and Abstract).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate in the device as taught by Schoolmen taken with Dwyer, III in view of Beller et al. the feature as taught by Nishi et al. in order to assist the liquid crystal material in switching between different states.

9. Claims 7, 13, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schoolman taken with Dwyer, III in view of Beller et al as applied to claim 1 in item 4 hereinabove.

Beller et al. further **teaches** an input operation device connected to said controller, wherein said controller transmits a signal in the form of a electric wave to said display device (col. 7, lines 60-67; col. 8, lines 1-11 and Fig. 1). Still further Beller **teaches** an image pick-up device wherein said image pick-up device converts at least images of said input operation device and a hand of said user into electrical signals and supplies said electrical signals to a display device (col. 4, lines 38-46). In addition it is well understood in the art and in common practice, in active matrix flat panel display devices, for each pixels to have an associated thin film transistor (TFT) and for TFT's to be incorporated in pixel driving circuits and to have these associated logic elements implemented on the same substrate. Further, it is well understood in the art to have a clock signal clocking the driving circuit at a frequency that is compatible with the overall system and logic timing; this frequency could be in the range of 50MHz to 60MHz.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate in the device as taught by Schoolman and Dwyer, III the features as taught by Beller et al. in that the ability to transmit signals to a remote device would extend the adaptability of the system to a larger number of applications. Further, it would have been obvious to a person of ordinary skill in the art at the time of the invention that with the camera (pick-up device) in the

system as taught by Beller et al.; whatever is in the field of view of the camera, including the hand of the user, would be included in the image that is transmitted to a display device.

Regarding claims 19 and 21, it would have been obvious to a person of ordinary skill in the art at the time of the invention to provide a camera/image pickup device apart from the display device if it was a desired feature of the system.

Relative to claim 20, it is well understood and in common practice in the art to drive flat panel display devices with source side driving circuits.

10. Claims 8, 10, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schoolman taken with Dwyer, III in view of Beller et al. as applied to claim 7 and 13 in item 9 hereinabove, and further in view of Funai et al.

Regarding claims 8 and 14, Schoolman taken with Dwyer, III in view of Beller et al. **does not teach** channel formation regions of TFTs connected to pixel electrodes of the said flat panel displays of said display device being constituted by a semiconductor thin film formed by a collection of a plurality of bar-shaped or planar bar-shaped crystals formed on an insulting surface.

Funai et al. **teaches** channel formation regions of TFTs connected to pixel electrodes of the said flat panel displays of said display device are constituted by a semiconductor thin film formed by a collection of a plurality of bar-shaped or planar bar-shaped crystals formed on an insulting surface (col. 1, lines 8-14).

It would have been obvious for a person of ordinary skill in the art at the time of the invention to incorporate in the device as taught by Schoolman taken with Dwyer, III in view of Beller et al. the feature as taught by Funai et al. in that it facilitates the fabrication of an active matrix type liquid crystal display device.

Relative to claims 10 and 16, Funai et al. further **teaches** an information processing device wherein 90 % or more of crystal lattices at grain boundaries of a channel formation regions have continuity (col. 12, lines 60-65). Though Funai et at. does not specifically cite 90 % he does teach "uniformity over a large area".

11. Claims 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schoolman taken with Dwyer, III in view of Beller et al. taken with Funai et al. as applied to claims 8 and 14 respectively in item 10 hereinabove and further in view of Oka et al. (U. S. Patent No. 6,235,563).

Relative to claim 9 and 15, Schoolman taken with Dwyer, III in view of Beller et al. taken with Funai et al. **does not teach** an information processing device wherein the channel formation regions of TFT's comprise a crystal grain having a <110> plane orientation.

Oka et al. **teaches** an information processing device wherein the channel formation regions of TFT's comprise a crystal grain having a <110> plane orientation (col. 4, lines 64-67; col. 5, line 1 and col. 11 lines 34-40).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to

use TFT's comprising a crystal gain having a <110> plane orientation to optimize field effect mobility.

12. Claims 11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schoolman taken with Dwyer, III in view of Beller et al. as applied to claims 7 and 13 in item 9 herein above, and further in view of Intriligator (U.S. Patent No. 6,163,323) taken with Lewis (U.S. Patent No. 6,040,812).

Relative to claims 11 and 17, Schoolman taken with Dwyer, III in view of Beller et al. **does not teach** flat panel displays comprising a display device on which one screen is written at frequencies in the range from 30 Hz to 180 Hz and on which screen display is carried out with the polarity of the voltage applied to the pixel electrodes inverted for each screen.

Intriligator **teaches** a self-synchronizing animation (col. 1, lines 6-9 and col. 2, lines 27-40).

Intriligator further **teaches** a display device on which one screen is written at frequencies in the range from 30 Hz to 180 Hz (col. 3, lines 24-37).

Schoolman taken with Dwyer, III in view of Beller et al. and further in view of Intriligator **does not teach** flat panel displays comprising a display device on which screen display is carried out with the polarity of the voltage applied to the pixel electrodes inverted for each screen.

Lewis **teaches** an active matrix display with integrated drive circuitry (col. 1, lines 6-8 and 54-65; col. 2, lines 1- 16). Lewis further **teaches** display device on which screen display is carried out with the polarity of the voltage applied to the pixel electrodes inverted for each screen (col. 13, lines 23-34).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate in the device as taught by Schoolmen taken with Dwyer, III in view of Beller et al the features as taught by Intriligator taken with Lewis in that Intriligator teaches a display refresh rate that is well know in the art and in common practice; and Lewis teaches the voltage inversion technique commonly employed in as noise control feature in matrix display devices.

13. Claims 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schoolman taken with Dwyer, III in view of Beller et al. as applied to claims 7 and 13 in item 9 hereinabove, and further in view of Nishi et al. (U.S. Patent No. 5,541,747).

Regarding claims 12 and 18, Schoolman taken with Dwyer, III in view of Beller er al. **does not teach** a flat panel display device which is a liquid crystal display using a liquid crystal material which is antiferroelectric liquid crystal of ferroelectric liquid crystals substantially having no threshold.

Nishi et al. **teaches** an electro-optical device utilizing a liquid crystal having a spontaneous polarization (col. 1, lines 7-26; col. 6, lines 11-67; col. 7, lines 1-36 and Abstract). Nishi et al. further teaches a flat panel display device which is a liquid crystal display using a liquid crystal material which is antiferroelectric liquid crystals or ferroelectric liquid crystals substantially having no threshold (col. 11, lines 5-16 and Abstract).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate in the device as taught by Schoolmen taken with Dwyer, III the feature as taught by Nishi et al. in order to assist the liquid crystal material in switching between different states.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. S. Patent No.	6,072,445	Spitzer et al.
U. S. Patent No.	6,043,800	Spitzer et al.
U. S. Patent No.	6,011,653	Karasawa
U. S. Patent No.	5,971,538	Heffner

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Responses

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Vincent E. Kovalick** whose telephone number is **(703) 306-3020**. The examiner can normally be reached on Monday-Thursday from 9:00 a.m. to 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Bipin Shalwala**, can be reached at **(703) 305-4938.**

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Inquires

17. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is **(703) 306-0377**.

Vincent E. Kovalick

BIPIN SHALWALA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600